

IN THE CLAIMS:

1. A particle detection and removal system for wafer fabrication equipment, comprising:
 - a sample port for insertion in said wafer fabrication equipment;
 - a vacuum source having a vacuum port, wherein a diameter of said sample port is smaller than a diameter of said vacuum port; and
 - a particle sensor connected between said vacuum source and said sample port, said particle sensor for detecting a number of particles.
2. The system of claim 1, further comprising a modulated cleaning system for modulating a vacuum pressure between a first pressure state and a second pressure state.
3. The system of claim 2, wherein said first pressure state is provided by said vacuum source and the second pressure state is provided by a venturi boost.
4. The system of claim 2, wherein said modulated cleaning system comprises:
 - a venturi boost connected between said vacuum source and said particle sensor for providing said second pressure state;
 - a first clean dry air (CDA) line;
 - a solenoid connected between said CDA line and said venturi boost;
 - a controller box connected to said solenoid for controlling a modulation rate and duty cycle.
5. The system of claim 1, wherein said vacuum source comprises a house vacuum.
6. The system of claim 1, wherein said vacuum source comprises a portable hepa filter vacuum.

7. The system of claim 1, further comprising a computing device connected to said particle monitor for displaying a count of particles detected by said particle monitor.
8. The system of claim 1, wherein said computing device is a personal computer and monitor.

9. A particle detection and removal system for wafer fabrication equipment, comprising:

- a portable cart;
- a first vacuum hose for connection to a vacuum source;
- a second, smaller diameter, vacuum hose having a cleaning port for connection to the wafer fabrication equipment;
- a particle sensor for detecting a number of particles connected between said first vacuum hose and said second vacuum hose; and
- a display mechanism connected to said particle sensor for repeatedly displaying the number of particles detected.

10. The system of claim 9, wherein said second vacuum hose has an outside diameter on the order of $\frac{1}{2}$ inch.

11. The system of claim 9, further comprising a modulated cleaning system for modulating a vacuum pressure in said second hose between a first pressure state and a second pressure state.

12. The system of claim 11, wherein said first pressure state is provided by said vacuum source.

13. The system of claim 11, wherein said modulated cleaning system comprises:

- a venturi boost connected to said first vacuum hose for providing said second pressure state;
- a first clean dry air (CDA) line;
- a solenoid connected between said CDA line and said venturi boost;
- a controller box connected to said solenoid for controlling a modulation rate and duty cycle.

14. The system of claim 13, further comprising a second CDA line, wherein said venturi boost provides both said first pressure state and said second pressure state.
15. The system of claim 9, wherein said display mechanism is a computer and monitor.
16. The system of claim 9, wherein said vacuum source comprises a house vacuum.
17. The system of claim 9, wherein said vacuum source comprises a portable hepa filter vacuum.